WHAT IS CLAIMED IS:

1. An encoding device, comprising:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section; and

a transfer section for transferring the bit streams at a prescribed transfer rate,

wherein the storage section includes a buffer having a capacity corresponding to at least a value which is obtained by subtracting an amount of the bit streams transferable in one frame time period at a minimum possible transfer rate from a value of twice the maximum frame length.

2. An encoding device, comprising:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section; and

a transfer section for transferring the bit streams at a prescribed transfer rate,

wherein:

the storage section includes a buffer having a capacity of at least a value which corresponds to the maximum frame length, and

the encoding section generates the bit streams so that a sum of an amount of the bit streams stored in the storage section at the moment when the bit streams for one frame time period are generated and an amount of the bit streams for the one frame time period is equal to or less

than the capacity of the storage section.

3. An encoding device for generating and transferring bit streams to a decoding device including a bit accumulation section for accumulating the bit streams and a decoding section for decoding the bit streams accumulated in the bit accumulation section, the encoding device comprising:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section;

a transfer section for transferring the bit streams at a prescribed transfer rate; and

a condition setting section for setting a transfer rate in the encoding section,

wherein the encoding section stops generation of the bit streams when the transfer rate is changed by the condition setting section and suspends the generation of the bit streams at least until a usable capacity of the bit stream accumulation section made by decoding of the bit streams by the decoding section becomes equal to or greater than the maximum frame length.

4. An encoding device, comprising:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section;

a transfer section for transferring the bit streams at a prescribed transfer rate; and

a condition setting section for setting a transfer

rate in the encoding section,

wherein the encoding section generates the bit streams in an amount corresponding to the maximum frame length in one frame time period immediately after the transfer rate is changed.

5. An encoding device for generating and transferring bit streams to a decoding device including a bit accumulation section for accumulating the bit streams and a decoding section for decoding the bit streams accumulated in the bit accumulation section, the encoding device comprising:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section;

a transfer section for transferring the bit streams at a prescribed transfer rate;

a condition setting section for setting a transfer rate in the encoding section; and

a decoding time information designation section for adding decoding time information to the bit streams,

wherein the encoding section stops generation of the bit streams when the transfer rate is changed by the condition setting section and suspends the generation of the bit streams at least until a usable capacity of the bit stream accumulation section made by decoding of the bit streams by the decoding section becomes equal to or greater than the maximum frame length, and adds decoding time designation information to the bit streams in one frame time period immediately after the transfer rate is changed, the decoding time designation information being obtained by adding a value of time when transfer of the bit streams at

a post-change transfer rate is started and a value of at least a time period in which the bit streams of the maximum frame length transferred at the post-change transfer rate are to be accumulated in the bit stream accumulation section.

6. A decoding device for converting bit streams produced by an encoding device according to claim 1 into an audio signal, the decoding device comprising:

a bit stream accumulation section for accumulating the bit streams; and

a decoding section for decoding the bit streams accumulated in the bit stream accumulation section,

wherein:

the bit stream accumulation section includes a buffer having a capacity corresponding to at least a value which is obtained by multiplying the maximum frame length of the bit streams with a value obtained by dividing a maximum possible transfer rate by a minimum possible transfer rate, and

the decoding section starts decoding the bit streams after accumulating, in the bit stream accumulation section, the bit streams for a time period of a value obtained by multiplying one frame time period with a value obtained by dividing the maximum possible transfer rate by the minimum possible transfer rate.

7. A decoding device for converting bit streams produced by an encoding device according to claim 3 into an audio signal, the decoding device comprising:

a bit stream accumulation section for accumulating the bit streams; and

a decoding section for decoding the bit streams accumulated in the bit stream accumulation section,

wherein:

the bit stream accumulation section includes a buffer having a capacity corresponding to at least a value of the maximum frame length of the bit streams, and

the decoding section starts decoding the bit streams simultaneously when the accumulation of the bit streams in the bit stream accumulation section is started; and when an amount of the bit streams remaining in the bit stream accumulation device becomes a prescribed level larger than 0, the decoding section suspends the decoding the bit streams until the bit streams are accumulated sufficiently to prevent an underflow.

8. A decoding device for converting bit streams produced by an encoding device according to claim 5 into an audio signal, the decoding device comprising:

a bit stream accumulation section for accumulating the bit streams; and

a decoding section for decoding the bit streams accumulated in the bit stream accumulation section,

wherein:

the bit stream accumulation section includes a buffer having a capacity corresponding to at least a value of the maximum frame length of the bit streams, and

the decoding section decodes the decoding time designation information added to the bit streams by the decoding time designation section, and starts decoding the bit streams at the time designated by the decoding time designation information.

9. A broadcasting system including a transmitter for encoding an audio signal into bit streams and transmitting the bit streams, and a receiver for receiving the bit streams

and decoding the bit streams into the audio signal, wherein the audio signal is encoded by the encoding device according to claim 1.

10. A broadcasting system including an encoding device and a decoding device, wherein:

the encoding device includes:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section; and

a transfer section for transferring the bit streams at a prescribed transfer rate,

wherein the storage section includes a buffer having a capacity corresponding to at least a value which is obtained by subtracting an amount of the bit streams transferable in one frame time period at a minimum possible transfer rate from a value of twice the maximum frame length, and

the decoding device includes:

a bit stream accumulation section for accumulating the bit streams; and

a decoding section for decoding the bit streams accumulated in the bit stream accumulation section,

wherein:

the bit stream accumulation section includes a buffer having a capacity corresponding to at least a value which is obtained by multiplying the maximum frame length of the bit streams with a value obtained by dividing a maximum possible transfer rate by a minimum possible transfer rate, and

the decoding section starts decoding the bit

streams after accumulating the bit streams for a time period of a value obtained by multiplying one frame time period with a value obtained by dividing the maximum possible transfer rate by the minimum possible transfer rate.

11. A broadcasting system including an encoding device and a decoding device, wherein:

the encoding device includes:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section;

a transfer section for transferring the bit streams at a prescribed transfer rate; and

a condition setting section for setting a transfer rate in the encoding section,

wherein the encoding section stops generation of the bit streams when the transfer rate is changed by the condition setting section and suspends the generation of the bit streams at least until a usable capacity of the bit stream accumulation section made by decoding of the bit streams by the decoding section becomes equal to or greater than the maximum frame length, and

the decoding device includes:

a bit stream accumulation section for accumulating the bit streams; and

a decoding section for decoding the bit streams accumulated in the bit stream accumulation section,

wherein:

the bit stream accumulation section includes a buffer having a capacity corresponding to at least a value of the maximum frame length of the bit streams, and

the decoding section starts decoding the bit streams simultaneously when the accumulation of the bit streams in the bit stream accumulation section is started; and when an amount of the bit streams remaining in the bit stream accumulation device becomes a prescribed level greater than 0, the decoding section suspends the decoding the bit streams until the bit streams are accumulated sufficiently to prevent an underflow.

12. A broadcasting system including an encoding device and a decoding device, wherein:

the encoding device includes:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section;

a transfer section for transferring the bit streams at a prescribed transfer rate; and

a condition setting section for setting a transfer rate in the encoding section,

wherein the encoding section stops generation of the bit streams when the transfer rate is changed by the condition setting section and suspends the generation of the bit streams at least until a usable capacity of the bit stream accumulation section made by decoding of the bit streams by the decoding section becomes equal to or greater than the maximum frame length, and

the decoding device includes:

a bit stream accumulation section for accumulating the bit streams; and

a decoding section for decoding the bit streams accumulated in the bit stream accumulation section,

wherein:

the bit stream accumulation section includes a buffer having a capacity corresponding to at least a value of the maximum frame length of the bit streams, and

the decoding section decodes the decoding time designation information added to the bit streams by the decoding time designation section, and starts decoding the bit streams at the time designated by the decoding time designation information.

13. A data storage medium having bit streams obtained by encoding an audio signal stored thereon, wherein the bit streams are produced by the encoding device according to claim 1.

14. An encoding device, comprising:

an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed;

a storage section for storing the bit streams generated by the encoding section;

a transfer section for transferring the bit streams at a prescribed transfer rate; and

a condition setting section for setting a transfer rate,

wherein:

the transfer rate is equal to or less than a prescribed maximum possible transfer rate, and

a maximum amount of the bit streams generated by the encoding section is restricted in accordance with the transfer rate and the maximum possible transfer rate.

15. An encoding device according to claim 14, wherein the

maximum amount of the bit streams generated by the encoding section is restricted so that a sum of a maximum possible amount of the bit streams stored in the storage section and the maximum amount of the bit streams generated by the encoding section is equal to or less than whichever is the smaller of a value corresponding to the prescribed maximum possible transfer rate or a value corresponding to n times the transfer rate, where n is an integer of 1 or more.

16. An encoding device according to claim 14, wherein the maximum amount of the bit streams generated by the encoding section in each of at least one frame time period immediately before and immediately after the transfer rate is changed by the condition setting section is restricted.

17. An encoding device according to claim 14, wherein the maximum amount of the bit streams generated by the encoding section in each of at least one frame time period immediately before the transfer rate is changed by the condition setting section is restricted, so that a sum of a maximum possible amount of the bit streams stored in the storage section in one frame immediately before the transfer rate is changed and the maximum amount of the bit streams generated by the encoding section corresponds to the pre-change transfer rate.

18. An encoding device according to claim 14, wherein when the post-transfer rate is higher than the pre-change transfer rate, the maximum amount of the bit streams generated by the encoding section is restricted so that a sum of a maximum possible amount of the bit streams stored in the storage section in one frame time period immediately after the transfer rate is changed and the maximum amount

of the bit streams generated by the encoding section corresponds to the post-change transfer rate.

19. An encoding device according to claim 14, wherein when the post-transfer rate is lower than the pre-change transfer rate, the maximum amount of the bit streams generated by the encoding section in each of at least one frame time period immediately before the transfer rate is changed by the condition setting section is restricted so that a sum of a maximum possible amount of the bit streams stored in the storage section in one frame time period immediately before the transfer rate is changed and the maximum amount of the bit streams generated by the encoding section corresponds to the pre-change transfer rate.

20. A decoding device for decoding bit streams generated from an audio signal and transmitted from an encoding device including an encoding section for generating bit streams having a variable frame length from an input audio signal, a maximum frame length of the bit streams being fixed; a storage section for storing the bit streams generated by the encoding section; a transfer section for transferring the bit streams at a prescribed transfer rate; and a condition setting section for setting a transfer rate, wherein the transfer rate is equal to or less than a prescribed maximum possible transfer rate, and a maximum amount of the bit streams generated by the encoding section is restricted in accordance with the transfer rate and the maximum possible transfer rate,

the decoding device comprising:

an accumulation section for accumulating the bit streams; and

a decoding section for decoding the bit streams

accumulated by the accumulating section into the audio signal,

wherein the accumulation section has a capacity corresponding to n times the prescribed maximum possible transfer rate, and the decoding section decodes the bit streams after the accumulation section accumulates the bit streams for at least one frame time period.

21. A decoding device according to claim 20, wherein the encoding device further includes a decoding time information designation section for adding decoding time information to the bit streams, and the accumulation section refers to the decoding time information to determine a time period in which the bit streams are to be accumulated in the accumulation section.

22. A broadcasting system using variable frame length bit streams, a maximum frame length of which is fixed, the broadcasting system comprising an encoding device according to claim 14.

23. A broadcasting system according to claim 22, further comprising a decoding device for decoding the bit streams output from the encoding device.

24. A storage medium having bit streams having a variable frame length stored thereon, the bit streams being generated from an audio signal input to an encoding device according to claim 14.